

REMARKS

Claims 66-152 are pending in the application. Claims 106-152 have been withdrawn from consideration. Claims 66-105 have been rejected. Applicants timely submitted an Amendment and Response to the outstanding Office Action on December 17, 2008, accompanied by a Petition for Extension of Time and Payment of Fees. However, Applicants wish to supplement the remarks set forth in their previous Amendment and Response with the following remarks.

Composting is a biological process, defined as the *controlled biological decomposition*¹ or *biological transformation*² of organic material.

Essential characteristics of the composting process:

- Organic materials are consumed by microorganisms (predominantly bacteria and fungi),
- The microorganisms consume oxygen, and require suitable levels of moisture and air;
- CO₂ is produced and energy is released as heat as a direct result, or by product of biological activity.

The rate at which heat is generated in a well managed compost system is greater than the rate at which heat is lost. Consequently the temperature of the compost pile increases. The outer layers of the compost pile (or the insulated walls of a compost container) provide insulation assisting the achievement of elevated (thermophilic) temperatures. The process is defined as **exothermic** – i.e., the process generates or liberates heat.

The upper limit of temperature achieved in a composting pile is self limiting, as few of the microorganisms associated with the composting process can survive temperatures above 60-65°C. If the temperature reaches 65-70°C (150 - 168° Fahrenheit), most composting microorganisms die off, and only some spore forming bacteria can survive (as inactive spores). At this point, as the rate of biological activity/decomposition slows, the generation of heat and CO₂ (which result from biological activity) is correspondingly reduced, and temperatures naturally begin to decline to levels that once again allow biological activity to increase.

¹ U.S. EPA (Code of Federal Regulations Title 40, Part 503, Appendix B, Section B)

² Standards Australia (2003) 3rd Edn. Australian Standard AS 4454 for Composts, Soil Conditioners and Mulches. Standards Australia, Sydney, Australia.

The use of an external energy source (e.g., electricity or gas) to heat the mass of organic materials does not assist the biological process of composting in any normal circumstance. Indeed, the application of heat to rapidly reduce moisture content will deny any significant biological activity/decomposition where materials are heated to temperatures of greater than 60-65°C and the only significant process to occur will be thermal dehydration - essentially simmering/cooking.

The patents referred to in the Office Action (e.g., U.S. Patent No. 5,534,042 to Tsuchida) that heat the organic materials from an external power supply are NOT composting processes. These patents describe processes for heating materials to rapidly reduce their moisture content. Such processes are endothermic – i.e., they REQUIRE the provision of an external heating source. These are clearly and unambiguously drying or dehydration processes using external energy to heat the materials. Such processes are not biological processes, they do not conform to any credible or official definition of composting, and are in fact misrepresented in patent documentation as composting processes.

The patents that are relied upon in the Office Action present no conflict with the current application under consideration because they clearly are drying processes that require external provision of energy. The use of the term "composting" in these patents is fundamentally and scientifically incorrect.

Supporting references for the statements above that are available on-line are provided as references below, the first of which are also provided as attachments, and are from peer reviewed publications. The concepts in question are fundamental to the discourse of composting science and an endless number of supporting references can be provided to support the statements made here:

- Recycled Organics Unit (2007). 3rd edn. Information Sheet No. 5-3 Composting Science for Industry: Temperature. University of New South Wales, Sydney, Australia. Internet Publication: <http://www.recycledorganics.com/infosheets/5csilIS5-03.pdf>
- Recycled Organics Unit (2007). 3rd edn. Information Sheet No. 5-3 Composting Science for Industry: Temperature. University of New South Wales, Sydney, Australia. Internet Publication: <http://www.recycledorganics.com/infosheets/5csilIS5-01.pdf>

- Cornell Waste Management Institute (2008). Compost Physics. Cornell University, Ithaca, NY, USA. Internet Publication:
<http://www.css.comell.edu/compost/physics.html>
- Cornell Waste Management Institute (2008). Compost Microorganisms. Cornell University, Ithaca, NY, USA. Internet Publication:
<http://compost.css.comell.edu/microorg.html>
- Rynk, R., van de Kamp, M., Willson, G.B., Singley, M.E., Richard, T.L., Kolega, J.J., Gouin, F.R., Laliberty Jr., L., Kay, D., Murphy, D.W., Hoitink, HAJ. and W.F. Brinton (1992). On-Farm Composting Handbook. Natural Resource, Agriculture, and Engineering Service. Ithaca, New York, USA.

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CONCLUSION

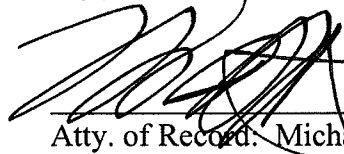
Applicants submit that all pending claims are allowable, and earnestly solicit allowance thereof.

In the event that there are any questions related to this response or the application in general, the undersigned would appreciate the opportunity to address those questions directly in a telephone interview to expedite the prosecution of this application.

If necessary, Applicants request that this response be considered a request for an extension of time for a time appropriate for the response to be timely filed. Please charge any fees that may be due in connection with this Response to Bose McKinney & Evans LLP's Deposit Account No. 02-3223.

Respectfully submitted,

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